THE EFFECTS OF COMPETITION ON STATUS DIFFERENTIATED GROUPS

A Dissertation

by

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ABSTRACT

Previous research using status characteristics theory illustrates how stereotyping is activated and maintained in small task-oriented group interactions. This occurs when group members reference their and other's observable characteristics to form expectations about task performance and to ascribe status that then corresponds with expected performance outcomes. This impacts group members' behavior by generating a interactive process that benefits group members with higher status compared to those with lower status. Researcher have primarily focused on developing intervening strategies to prevent these disparate outcomes and change the effects of inequality as a result of stereotyping. However, there have been fewer investigations of how context or institutional rules can affect inequality, even though these aspects are easier to change than individual characteristics.

For this study, I examine how the context of the group task can change the dynamics between status differentiated group members and consequently change inequality. I conduct a two condition laboratory experiment with groups composed of one non-Hispanic Black and two non-Hispanic White females to manipulate the presence of intergroup competition and determine whether competition operates as a mechanism that increases inequality. I predict that groups in the competing condition will activate racial stereotypes more than non-competing groups for the sake of "doing well." As a result, White group members overall are predicted to have significantly more opportunities to contribute to the group task compared to Black group members,

especially in the competitive condition. I further predict that group performance will worsen in the competitive compared to the non-competitive condition. Lastly, I predict that groups in the competitive compared to the non-competitive condition will report better performance evaluations and affective measures for their peers and group overall. The results provide support for predictions of increased inequality and partial support for predictions of performance evaluations and affective measures. No support was found for predictions of group performance. Overall, the findings from this study suggest that changes to the context of the task can negatively affect small group interactions and generate greater inequality between status differentiated group members.

To my Parents.

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1. INTRODUCTION

Attitudes toward the value and utility of competition are largely favorable in US culture. Generally, competition is thought to motivate persons involved in a task to work harder to achieve the best results possible. This is especially the case in zero-sum competitions where there can only be one successful actor. For my study, I focus on the aspect of competition to investigate situations that might exacerbate or lessen inequality in small group interaction. Specifically, I address the effects of intergroup competition on otherwise cooperative group interactions that involve group members who differ in observable characteristics.

When group members are brought together to complete a task, they use any information available to them to help guide their interactions. If group members are differentiated only on the basis of some observable characteristic such as race, sex category, or age, that characteristic becomes relevant to the task. Group members then draw on cultural beliefs of what the differences within those salient characteristics mean in terms of competency and ability which leads to expectations about who is likely to do well on the task. Because beliefs about competency and ability are not equal among different observable characteristics, particularly those that are associated with socially significant categories, interactions between group members becomes unequal and reflects the assumptions associated with perceived differences in those characteristic.

If competition becomes associated with the group's task, I predict that any salient differences between group members will assume more relevance to the task, and that

inequality in terms of behavioral outcomes will be exacerbated. Additionally, group task performance is predicted to be worse when competition is involved compared to when it is not relevant to the task, which is consequence of having less input by all group members. Ironically, however, I predict that the effect of competing against another group will heighten group member's attitudes in terms of their performance evaluations, affective ratings, and levels of cohesion toward their group.

In Section 2, I provide a literature review on small group interaction research relevant to unequal practices, participation, performance and feelings toward the group when group members' characteristics differ. Section 3 details the theoretical contributions and the development of hypotheses associated with unequal interactions, task performance, and peer and group ratings. In Section 4, I discuss my research methods, review independent and dependent variables, and outline the study procedures developed to test my hypotheses. I present the data analyses and interpretation of results in Section 5, and then conclude with a summary in Section 6 to discuss of the implication of the findings and review considerations for future research.

2. LITERATURE REVIEW

When interacting in social situations where there is no history of interaction with others, the tendency is to use any information that is readily available as a means for navigating our own behavior and predict the behavior of others. One of the ways information about unfamiliar others is collected is by taking note of socially significant personal characteristics, such as a person's sex, race category, or approximate age. By making inferences based on these and other known characteristics, people confidently engage in social interactions and thereby avoid the risk of behaving inappropriately (Simmel 1908). If those social encounters with unfamiliar others have a specific purpose, such as achieving a common goal, the persons involved are likely to make inferences based on self and others' characteristics and relate what is known about those characteristics to perceived capability and competency for the purpose of organizing their interactions to meeting said goal.

These tactics describe a process that helps to organize interactions. Although the process in and of itself is not problematic, problems do occur under circumstances where one's perceived ability or capacity to engage in interaction stems from characteristics that are wholly unrelated to the task. This process of discriminating on the basis of characteristics such as race, sex category, or age has a self-fulfilling nature.

Discrimination at one point in time bolsters discrimination at later points in time, in part because it appears to be consistent and then becomes legitimized through the development of status beliefs (see Correll and Ridgeway 2006; Ridgeway 1991, 2001;

Troyer 2003; Webster and Hysom 1998). The well-documented history of this process in the United States especially demonstrates how such discrimination establishes a dominant order of interaction that benefits those with the preferred state within a social or personal characteristic while others with less preferred states of a characteristic are blocked from obtaining benefits.

In the following section, I review research that focuses on racially heterogeneous and task-oriented groups to illustrate how this discriminatory process occurs and is maintained. I highlight early work in experimental psychology, theoretical and applied research using structural social psychology frameworks, and research investigating outcomes of intergroup competition to outline how group interaction is impacted when group members recognize characteristic differences among them. Such outcomes include but are not limited to, inequality in terms of participation rates, perceptions of self and other's ability and competence, and group performance outcomes.

2.1 Psychological Research in Small Group Interaction

Katz and associates (e.g., Katz and Benjamin 1960; Katz, Goldston, and Benjamin 1958; Katz, Roberts, and Robinson 1965) were among the first in the field of small groups research to determine the effects and subsequent outcomes of interactions between racially heterogeneous groups. After conducting a field experiment and making observations based on the interactions between Black and White adolescents, Katz (1955) discovered marked differences in the behavior of group members that corresponded with a difference in racial category. Based on his findings, Katz attributed tension and potential conflict in interpersonal interactions between Black and White

adolescents to the uncertainty adolescents had about interacting with a person of another race, as well as to the activation of negative stereotypes regarding Black people in general. This work helped to elucidate how societal or structural belief systems, such as those that target certain groups as lesser than others on the basis of a nominal characteristic (i.e., race), are evident in small group interactions. In the case of Katz' (1955) observations, the discomfort of interacting with people who do not share the same racial identity resulted in outcomes of tension and inequality, further illustrating the racial segregation and discord prominent during this point in US history.

To build from their findings, Katz et al. (1958) tested a key assumption that interactions between Black and White persons were organized by low and high status, respectively. Because status is derived from societal belief structures about the general worth or value of what it means to possess a given state of a characteristic compared to another, a person who is White would occupy a high status relative to than that of a Black person. If status was a factor in racially heterogeneous group interactions, the researchers predicted ways in which the status differences between White and Black team members could be manipulated based on the conditions of their interaction to improve on issues of hostility and inequality within groups.

The researchers conducted laboratory experiments using racially mixed groups composed of two Black and two White male undergraduates to test whether varying reward systems and levels of group prestige would affect communication between group members and productivity on the group task. The general prediction was that group level rewards compared to rewards based on individual accomplishments would increase

communication, collaboration, and task orientation between all group members. They also predicted that manipulating the degree of prestige associated with those characteristics would create more inclusive forms of interaction between Black and White group members compared to groups where prestige was not manipulated. Results of this study supported the researchers' predictions that greater cooperation and task-orientation occurred under group reward conditions compared to individual reward conditions. Furthermore, Black and White group members had higher rates of communication in group reward compared to individual reward conditions. Predictions regarding variations in prestige and levels of productivity were only partially supported. While White group members scored higher in every task, were more active, and had higher levels of communication overall, the results of the interventions showed that changing the reward system was successful in increasing cooperation and task orientation between Black and White group members.

In a follow-up study, Katz and Benjamin (1960) predicted that in addition to reward system type and level of group prestige, high levels of authoritarianism among White group members would result in higher levels of aggression toward lower status (i.e., Black) group members as compared to non-authoritarian Whites. This occurred even in the case when Black and White team members shared equal status on other task related factors. Counter to their initial predictions, the researchers found that in racially heterogeneous and authoritarian groups, White actors were more accepting of suggestions from Black group members, while Black actors were more assertive in their directives toward their White group members. The researchers attributed these findings

to external factors such as increased interpersonal contact between equal status Black and White persons as well as increased non-discriminatory policies and practices that had begun taking an institutional effect in the US. They conjectured that authoritarian Whites feared being reprimanded by an authority figure, in this case the researchers, and their fear reduced hostility toward their lower status Black team members.

2.2 Status Characteristics Theory

The area of small groups research by Katz and his colleagues was primarily an exploratory investigation into conditions of small group settings and composition that might result in conflict between Black and White team members. More so, the research extending from Katz' (1955) initial study sought to understand how those hostile and unequal outcomes might be avoided.

Berger, Zelditch, Cohen and colleagues referenced this work by Katz to develop the theoretical framework referred to as expectation states theory, which investigates how social stratification processes operate and impact behavior in small, task-oriented groups. Status characteristics theory is an extension of this framework that describes how a person's nominal or personal characteristics corresponded with levels of status, and how the states of said characteristic are incorporated into social interactions to be used to organize behavior of self and others (Berger, Cohen, and Zelditch, 1966; Berger, Cohen, and Zelditch 1972).

The researchers began by first classifying the types of characteristics relevant to this theoretical framework. *Specific* status characteristics correspond to explicit types of ability such as mathematical aptitude or athleticism. These characteristics are

differentially evaluated on at least two states, meaning a person's degree of experience or expertise can be ranked (e.g., mathematical novice, mathematical genius). Group members then reference those states of the characteristic and gain insight on how likely they and other group members are to perform at the given task, regardless as to whether the characteristic is relevant to the task at hand. *Diffuse* status characteristics are not connected to specific performance. While these characteristics are still differentially evaluated such that some people possess high or low states, the reference to ability or competence is not clearly associated with the characteristic. Instead, perceptions of ability and competence are generalized from structural and societal beliefs that then impact group members' expectations of that characteristic and of those who possess the high or low states. For example, in US culture, sex category meets the criteria to be classified as a diffuse status characteristic. There are at least two categories within that characteristic, male and female, that then correspond with high and low status, respectively. It is important to state again that the status ascribed to those states of the characteristic are borne from societal beliefs that ascribe general or moral value to what it means to be male or female. There is no legitimate (i.e., objective) basis for differentially evaluating competency or ability on the sheer basis of being male or female; however, in US culture as well as many others, it is generally assumed and therefore expected that men will perform better compared females in most situations and alternatively that females will underperform.

Previous research has clearly demonstrated how power and prestige have been allocated to some people based only on the characteristics they possessed as opposed to

abilities related to a task (see for example Freese and Cohen, 1973; Freese, 1976; Katz and Benjamin, 1960; Katz et al., 1958; Strodtbeck, James, and Hawkins, 1957; Strodtbeck and Mann, 1956; Torrance, 1954). Berger and his colleagues identified the connection between the language these studies in that centered on status differences with how those differences affected a person's ability to exercise influence, to participate in group decision making, and effect the perceptions the person held for others involved in the interaction. This was conceptualized as the *status organizing process* (Berger, Rosenholtz, and Zelditch, Jr. 1980), whereby persons recognize salient differences in characteristics between themselves and the people involved in a given interaction.

Not all social interactions result in this status organizing process. Status characteristics theory identifies scope conditions that must be met in order for these processes to occur. To summarize, group members must be status differentiated and involved in a collectively-oriented task with the purpose of succeeding. Once these conditions are met, status generalization is predicted to occur under the following assumptions (Berger et al. 1977, 1980): Assumption 1, *activation*, actors in the group are differentially associated by their states of a status characteristic; Assumption 2, *burden of proof,* if the characteristic is not dissociated from the perceived abilities associated with the task, the characteristic and the expectations associated with those states will become relevant to the task; Assumption 3, *sequencing*, performance expectations associated with a difference in diffuse status will remain if an actor exiting the interaction is replaced by another actor who possessing the same diffuse state of the characteristic; Assumption 4, *aggregation*, performance expectations associated with the

group task will correspond with the person's state of the status characteristic, such that the person possessing the higher state of the characteristic will also possess the higher state of performance expectations; Assumption 5, *basic expectation*, if performance expectations remain consistent with the states in the status characteristic, then one actors' position relative to a group member with be a direct function of the that actor's expected advantage over the other group member.

The process by which behavior is organized on the basis of status generalization is referred to as the *observable power and prestige order* (OPPO). This process explains how the group's behavior is organized in such a way that favors higher status group members compared to the lower status group members. High status group members engage in more action opportunities, contribute more performance outputs, are positively evaluated based on those outputs through reward actions, and have greater influence over the other lower status group members. Alternatively, low status members engage in fewer action opportunities, have fewer performance outputs, are more likely to receive negative or neutral evaluations of those performance outputs via reward actions of the high status group member, and are less likely to have influence with decision making during the task.

Theoretical derivations of the status generalization process have also been depicted using graphic path modeling. Consider a situation involving a group of unacquainted actors who are working on an unfamiliar decision making task (T) (*see Figure 1*). Though the actors have no previous experience with the task, they must reach a consensus through working collectively and are also encouraged to perform to the best

of their ability. In this instance, the group consists of only two members identified as *p* for person and *o* for other. Furthermore, group members *p* and *o* are similar in every observable characteristic except for race, where actor *p* identifies as White and actor *o* identifies as Black.

Given that race is the only differentiating characteristic between group members, that they have no additional information about one another, and that they must work jointly on the decision making task, status characteristics theory predicts that race will "activate" as a status characteristic. Specifically, race meets the criteria as being a diffuse status characteristic in that 1) there are at least two states of the characteristic (e.g., Black, White), 2) the states are differentially evaluated as generally positive (favorable) or negative (unfavorable) within the context of the given culture (i.e., being white is generally more valued than being Black), and 3) expectations of ability and performance become specifically as well as generally associated with the states (e.g., "People who are white have more economic capital." "People who are white are generally hard working."). Graphically, this is represented as *p* possessing the positive state of the diffuse characteristic (D_+) and *o* possessing the negative state of the characteristic (D_-).

Once a status characteristic is activated, status characteristics theory predicts that group members will reference general expectations (Γ) of what it means to possess a given state of the characteristic. Recall that general expectations are associated with socially constructed status beliefs that reference what "most people think" rather than how things actually are. So, for example, a general expectation for actor *p* who possesses

the higher state of the diffuse characteristic in this situation is that they are "generally" more skilled and capable, while the opposite is the case for actor *o*. Both group members then generalize from those expectations to form performance expectations (C*) of how likely they and their partner are to succeed (or fail) at the task, (T). Unless an intervention is introduced that dissociates the generalized expectations of the status characteristic (Γ) from the performance expectations associated with the task (C*), the group's interactions will be affected in ways that favor of the high status group member and detriment the low status group member.

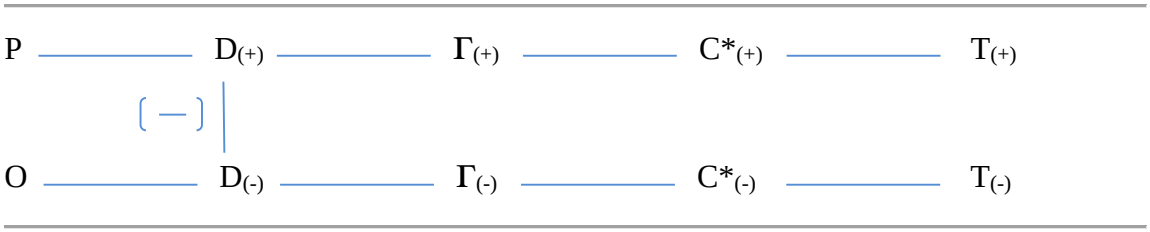

Figure 1. Graphic Representation of Status Generalization with Diffuse Status, adapted from (Berger et al. 1977)

The predictions can be understood by measured paths in the graphing model. When paths are consistent, status characteristics theory predicts that shorter and more paths connecting actors to the task will strengthen the generalization process. There are two paths connecting actor *p* to the task. The first is direct with four connections (*p* – D – Γ – C* – T), and the second is indirect with five connections (*p* – D – D – Γ – C* – T). Notice that the second last path includes a measure of dimensionality between the diffuse states $D_{(+)}$ and $D_{(-)}$. Since actor *p* possesses the positive state of the characteristic

compared to actor *o*, their connection to the task through actor *o*'s direct path becomes positive.

The results of this process can also be measured through instances of observable power and prestige. The actor possessing the higher state of the diffuse status, in this case actor *p*, is predicted to incur more opportunities to contribute to the task, exercise influence over other group member, and receiving positive ratings by other group members. Alternatively, actor *o* will have fewer opportunities to participate, less influence, and be regarded as less productive. One of the remarkable implications of status generalization is that even though the process occurs at a non-conscious level, there are still measurable consequences in how group interactions are impacted.

These graphic models and the theoretical derivations they represent have been used consistently in status characteristics research. Several studies have established connections between status characteristics and the legitimating processes that impact task group interactions (e.g., Berger et al., 1998; C. Johnson, Fasula, Hysom, and Khanna, 2006; Lucas, 2003; Ridgeway and Berger, 1986), while more work focuses on new status structures and characteristics as a result of modified scope conditions (see for example Berger, Ridgeway, and Zelditch, 2002; Webster and Driskell, 1978; Webster and Hysom, 1998). There are also a number of studies that have modified different aspects of status characteristics theory. Many have done so for the purpose of developing and testing intervening mechanisms to the status generalization and observable power and prestige processes. One of the first projects at modifying the conditions of status characteristics theory was conducted by Fişek (1991). He posited six innovative

theorems with the aim of expanding one of the theory's scope conditions, task-oriented groups, to allow for predictions with more complex task structures.

Goar and Sell's (2005) study was the first to empirically test one of Fişek's proposed theorems. They experimentally tested the *inconsistent complexity* scenario to assess whether the type of task information provided would mediate the otherwise unequal processes that occur in racially mixed and task-oriented groups. Figure 1 shows that in the absence of intervening processes, a person with the lower state of characteristic $D_{(-)}$ results in low perceived ability $C^*_{(-)}$ at the task (T). Goar and Sell implemented inconsistent complexity by informing participants in the experimental condition that the skills required to complete their task varied, that no one person could possibly possess all the skills needed, and that everyone in their group would have some ability to contribute to the task. The results of their manipulation confirmed their predictions. Black and White participants in the experimental condition had significantly greater rates of equality in terms of opportunities to contribute to the task and opportunities to help organize their group.

2.3 Education Research on Small Group Interaction

Elizabeth Cohen and her colleagues applied a variety of interventions to unequal interactive processes that resulted from status differences in school settings. School administrators were largely unaware of the complexities of intergroup interactions prior to desegregation efforts at the time, and as a result, heterogeneous classrooms produced and reproduced unequal interaction processes between status differentiated students. Cohen's multi-year, applied research agenda investigated the ways in which status

generalizing processes affected students' interactions in problem-solving groups with their peers and teachers at elementary, middle, and high schools. As the theoretical components of expectation states theory evolved, Cohen used them to better understand processes of classrooms and to develop interventions for what she and colleagues described as *interaction disability* and *white dominance*. These two conditions describe the effect of status generalization that fostered perceptions of White students having more competence than Black students. This perception led to a self-fulfilling prophecy, such that Black students defer at greater rates and participate less in group work activities than White students.

In an early study, Cohen et al. (1970) tested the Expectation Training I intervention that targeted unequal-status behaviors in heterogeneous classroom. Junior high students were divided into four-person, mixed race groups tasked with building a two transistor radio. Prior the task, Black and White students were separated and provided video instructions on assembling the radio. In treatment conditions, Black students not only watched a video with better instructions, but were also provided opportunities to practice before working with other group members. After finishing the radio building task, the teams completed a separate criterion task called "Kill the Bull," a board game that involved moving from start to finish in a set number of moves. The researchers hypothesized that the Black students who experienced Expectation Training I on the initial task would have an increased sense of competency and would increase their rates of participation. This effect was also predicted to carry over into the "Kill the Bull" game, thereby reducing the probability of "white dominance" over time and across

different tasks. Counter to their predictions, the control and treatment conditions did not differ.

As a result, Cohen and Roper (1972) modified the previous study design and procedures and called the revised treatment Expectation Training II to account for the gaps in Expectation Training I. Three conditions were tested: a) only Black students were exposed to the revised expectation training featuring competent Black actors, b) Black and White students are exposed to the competent Black actor expectation training, but performance on the training task is not relevant to performance on the following criterion task, and c) Black and White students receive the expectation training, and performance on the training task is relevant to performance on the following criterion task. The modifications in Cohen and Roper's (1972) achieved the desired treatment effect, and showed that observable power and prestige effects tended to decreased between the Black and White participants. As predicted, exposing all students to Expectation Training II resulted in increased rates of participation among Black students and higher probability of active Black students being ranked as group leaders. This result was even stronger when performance on the training task was made relevant to performance on the criterion task. Later research by Cohen and her colleagues further demonstrates the utility of incorporating expectations states theory to explain how variations in status characteristics (e.g., race, gender, academics, peer status) in educational settings produce unequal opportunities across student-to-peer interactions, student-to-teacher interactions, and student performance outcomes overall (Cohen,

Lockheed, and Lohman 1976; Cohen, Lotan, and Catanzarite 1988, 1990; Cohen and Lotan 1995, 1997, 2004; Cohen 1982, 1993; Lotan 2003).

Other scholars in educational psychology conducted research on student educational outcomes unlike Cohen's work with status interventions. Roger and David Johnson's early research paralleled that of Cohen and her colleagues in their investigations of student achievement and performance outcomes in heterogeneous classroom settings. A key point of departure, however, is the shift from a focus on micro level processes, such as in Cohen's research, to macro level processes. The former examines the effects of status on student interactions and subsequent learning opportunities, while the latter questions whether the arrangement of classroom activities impacts student achievement and performance favorably or unfavorably.

2.4 Research on Intergroup Competition

The suggestion that intergroup competition can exacerbate differentiation among group members finds some support from other literatures across different disciplines. For example, there is a relatively large literature in education on how classroom structure can impact student's educational outcomes. Johnson and Johnson concentrated on what they identify as "goal structures" (Johnson and Johnson 1989, 1995; Johnson et al. 1981, 1984, 1990; Johnson, Johnson, and Maruyama 1983) which characterize different motivations for accomplishing goals (Johnson et al. 1981; 1983). The four most commonly investigated structures include direct interpersonal competition, cooperation with intergroup competition, cooperation without intergroup competition, and individualistic efforts. Interpersonal competition is conceptualized as a zero-sum

situation where individuals share the same goal but are in opposition to one another in achieving said goal. This can be established in an educational setting by providing a bonus to the student who performs the highest on an assignment. All students share the same goal (get the highest score), and only one student will receive the bonus; one student's success is remainders' failure.

Johnson and Johnson expanded the original field theory conceptualization of cooperation to account for intergroup competitive scenarios. The original intragroup definition of cooperation is a situation where individuals must work together to achieve a shared goal. In these situations, everyone succeeds or no one succeeds. Alternatively, cooperation with a competitive intergroup context describes multiple groups of individuals all working toward the same goal, but with a zero-sum outcome. Cooperation without intergroup competition can be thought of as individual classes at a grade level working together as a unit to acquire a bonus for all students at that grade level, while an intergroup context would be individual classes within that grade level in competition with one another. Individualistic efforts occur at the interpersonal level like competition. However, unlike competition or the two types of cooperation, individuals are not bound by a shared goal attainment. Success or failure by one individual in no way impacts the success or failure of another.

Johnson and colleagues (1981) findings from the meta-analysis of over one hundred studies revealed no significant differences between interpersonal competition and individualistic goal structures, nor were there differences between cooperative and cooperative/intergroup competitive structures. The researchers did find, however, that

both cooperative condition types produced higher achievement results compared to competitive and individualistic structures. In their discussion, they promoted further exploration into how cooperation without competitive intergroup contexts produce greater achievement and performance results compared to cooperative intergroup competition. Their findings strongly supported cooperative compared to competitive and individualistic learning structures; however, limits in their study prevented further analysis on the effects of gender and race and ethnic composition of student populations.

Subsequent studies by Johnson and Johnson transitioned from an interest on student achievement to an interest on positive relationships and interpersonal attraction between students in heterogeneous classrooms (Johnson et al. 1983). They developed the "social judgment process," which is a conceptual framework built from earlier work with the contact hypothesis. Previous research concluded that proximity does not correlate well with positive affect across status differentiated people. Given this, Johnson and Johnson posited that social interdependence between heterogeneous individuals influences social judgment, thereby influencing positive (or negative) affect between members in heterogeneous groups. In other words, the component of social judgment paired with contact better predicts levels of interpersonal attraction between heterogeneous group members. Their meta-analysis findings strongly supported cooperation w/o intergroup competition as the best goal structure for this process in terms of increasing interpersonal attraction between racially diverse and ability diverse students.

In their next study, Johnson, Johnson and colleagues (1984) used groups of heterogeneous Black and White student samples to experimentally test whether variation in intergroup structure (competitive versus non-competitive) would result in different outcomes. They hypothesized that under a competitive intergroup context, cooperative racially heterogeneous groups 1) had fewer opportunities for group member interaction, 2) resulted in less interpersonal attraction, 3) decreased positive perceptions of cooperative intragroup structures, and 3) increased the emphasis on individual students' academic ability and their perceived performance on the group task. The results of this study supported their predictions about rates of interaction, the emphasis on ability, and students' perceived value of cooperative group work. They also discovered that differences in task achievement between Black and White students were minimal in cooperative groups without intergroup competition compared to intergroup competitive conditions.

A recent examination of individual level outcomes by Van Loo and her colleagues (2013) conjectured that stereotype threat would be activated in low status individuals when working on a status-relevant task. They conducted four experimental studies where participants' individual work on status relevant tasks (e.g., mathematical problem solving, verbal problem solving) was in competition with others. Their results demonstrated that low status individuals employed social comparison tactics, experienced stereotype threat and lowered individual performance. While this study suggests *individual* performance can be negatively affected by competition, others suggest that intergroup competition can increase *group* performance (see Stanne et al.

1999). As an example, Mulvey and Ribbens (1999) experimentally tested differences in performance between make and female collectively oriented task groups where intergroup competition was manipulated. Their results supported several predictions, all postulating positive outcomes as a result of intergroup competitive contexts. Groups under the intergroup competition condition had increased performance outcomes and increased group efficacy. Importantly, however, these group level investigations often do not include measures of intra-group processes. Additionally, the positive effects of a common goal and a common enemy for group cohesion have been demonstrated for many years, famously publicized through the classic Robber's Cave Experiment (Sherif et al. 1988).

2.5 Measures of Affect, Favoritism and Esteem

The bulk of the studies reviewed describe variations in group member participation rates and task performance outcomes. Johnson and Johnson's work contributes to these findings and also considers variations in interpersonal attraction and socialization measures between group members. However, the studies do not really provide a theoretical basis for their findings related to these social measures. To correct for this, I adopt measures from the theory of relational cohesion as well as evaluative and attitude measures from intergroup bias literature in psychological social psychology.

The theory of relational cohesion was developed in order to demonstrate how commitment generates between actors in exchange networks (Lawler, Thye, and Yoon 2000; Lawler and Yoon 1993, 1996), where commitment is defined as instrumental, affective, or normative processes between actors resulting in a collective entity. Their

theory posits that the more actors reach exchange agreements, the more positive emotions such as satisfaction and pleasure generate from those exchanges. Positive emotion then translates into affective ties between the network actors, who are then more likely to reproduce those exchange patterns, thereby maintaining a positive cohesive relationship with their network. As a result, the actors treat their network as a social object in and of itself and attribute their positive feelings to the partnership associated with that network. This is especially the case when all actors have equal power relations (Lawler and Yoon 1998). Several tests have confirmed these predictions of relational cohesion within conventional dyads network, in larger three person networks, as well as under conditions such as productive exchange where all actors must approve before successful exchanges are completed (Lawler et al. 2000).

It is important to address some theoretical distinctions in Lawler's theory that may present challenges to the proposed study. First, Lawler and his colleagues predict exchange frequency as a driving factor for increasing group cohesion. In their designs, exchanges are a set number of controlled, negotiated episodes between actors. The actors interact through a computer interface and are never in a collective setting. Contrarily, exchanges in this study refer to the collective communication efforts made by group members. They are not restricted to a specific amount, nor are they restricted to exchanges that result in agreements. Second, the research on relational cohesion finds that information regarding the success (or failure) of the productive exchange influences group cohesion levels. Participants in this proposed study would not have information on

their performance prior to reflecting on cohesion measures. Instead, this study tests whether the presence of a competing group is enough to vary group cohesion outcomes.

There are also important parallels between the literature reviewed thus far and research by Lawler and his colleagues. The scope conditions of the experimental designs from expectation states and the applied educational studies pair well with productive exchange specifically such that 1) there are two or more individuals brought together for a joint production, 2) with high interdependence and joint control, 3) in a context where coordination is a necessary challenge and 4) where rewards are granted to the group rather than the individual (Lawler et al. 2000). Additionally, Lawler and his colleagues define group cohesion as "the perception of the group as a unifying force or object" (2000:620). This concept is similar to the interpersonal attraction outcomes described by Johnson and Johnson because it entails individual group members' reflections on their feelings and commitment toward one another and to their group overall.

At the same time, alternative predictions in terms of cohesion between group members can be found in the psychological intergroup bias literature. Researchers in this area suggest that positive feelings toward group members can result from something as simple as a categorization process. Tajfel and his colleagues (Tajfel, Billig, and Bundy 1971; Tajfel 1970) introduced the concept and power of the "minimal group paradigm" to demonstrated that no matter how arbitrarily groups are distinguished from one another, the shared membership between individuals within those groups is enough to induce in-group favoritism via resource allocation. Kahn and Ryen (1972) extended Tajfel's earlier work with the "minimal group paradigm" to explore mechanisms of in-

group favoritism. Participants were grouped and placed in one of two conditions: intergroup cooperation or intergroup competition. Before any actual interactions occurred, subjects rated their in-group as well as out-group members on a number of evaluative scales. The findings across both conditions showed that subjects evaluated their own team members significantly higher compared to out-group members. The difference in ratings was also significantly higher for subjects in the intergroup competitive context.

Marilynn Brewer's research has focused on challenging key assumptions about intergroup processes. Her initial investigations suggested that in-group favoritism can occur without the presence of a competitive out-group (Brewer 1979). She also argued against the notion that in-group favoritism directly corresponded with out-group derogation (Brewer 1999). An earlier review of intergroup relations by Brewer and Kramer recognized that "in-group favoritism is most frequently assessed in terms of biases on evaluative ratings" (1985:226). Furthermore, evaluative ratings used in many intergroup studies are less about members' performance and more on trait evaluations such as trustworthiness, generosity and friendliness (Brewer and Silver 1978). Other ratings include modified measures of self-esteem or mood including levels of comfort and anxiety (Bettencourt and Dorr 1998; Singh, Choo, and Poh 1998).

In a number of ways, the predictions from the intergroup processes literature conflict with those posed by the theory of relational cohesion. First, many predictions from intergroup processes are based on preexisting social categories (e.g., race) and how groups formed on these bases effect outcomes such as trait evaluations and resource

allocations. Although the parameters of relational cohesion do not account for shared group memberships between network actors, it is not the goal of this proposed research to focus on the effects of groups delineated by preexisting social categories at this time. Another point of departure is how relational cohesion predicts attachment to the group as a result of frequent exchange and positive affect. Alternatively, intergroup research suggests that the presence of an external group is enough to invoke positive attitudes towards in-group members. The choice of measures and the subsequent results of this study will offer greater insight into which, if not both, frameworks are successful at predicting positive affect toward the group.

3. THEORETICAL CONTRIBUTION

The literature reviewed in the previous section provides examples of how inequality is the default result of interactions in groups with varied racial composition. Some areas in small groups research focus on practical applications of intervening factors as Cohen and her colleagues have done in predicting the effects on participation rates and task performance outcomes in status differentiated, task-oriented groups. Other work has concentrated on developing theoretical interventions to the burden of proof process that rely on combining or modifying information about the actors (see for example Berger, Cohen, and Zelditch, 1972; Freese and Cohen, 1973; Lovaglia, Lucas, Houser, Thye, and Markovsky, 1998; Lucas, 2003; Markovsky, Smith, and Berger, 1984; Webster and Driskell, 1978; Webster and Sell, 2012). More recently, studies have focused upon how the definition of the task itself serves to interrupt this process (Cohen 1993; Fişek 1991; Goar and Sell 2005; Goar et al. 2013). Research from educational psychology has also emphasized the nature of the task structure and how it affects performance outcomes as well as perceptions of interpersonal attraction and feelings toward group members.

My research builds upon the traditional concepts developed in status characteristics theory by investigating how participation, performance, and overall group affect is impacted through changes to the group task. By incorporating intergroup competition as part of the group's task, I effectively modify the scope conditions of status characteristics theory and propose that an additional performance characteristic

will generate and correspond to the task as a function of competition. My key argument is that competition between groups will exacerbate the degree of inequality in group members largely because competition redefines the situation in terms of the task itself.

Assumption 1: The performance characteristic of perceived ability C^*_1 at a given task T corresponds with performance expectation associated with task competition C^*_2 involving the same task. As a result, the high state of $C^*_1{}^{(+)}$ corresponding with high state of $C^*_2{}^{(+)}$ and the low state of $C^*_1{}^{(-)}$ corresponding with low state of $C^*_2{}^{(-)}$.

By this logic, performance on a task and performance on a task involving competition are symmetrically related. If person *p* possesses the higher state of the diffuse characteristic, she will possess the higher state of the performance characteristic (symbolized as C^*_1) related to the task T, and she will also possess the higher state of the *competitive* performance characteristic (symbolized as C^*_2) associated with the task T.

Assumption 2: In no situation there will be an actor who possesses the high state of a performance characteristic and the low state of the competitive performance characteristic: $C^*_1{}^{(+)} \mid C^*_2{}^{(-)}$ nor $C^*_1{}^{(-)} \mid C^*_2{}^{(+)}$.

These additional assumptions accompanied with the established assumptions of status characteristics theory allows for a theoretical graphic representation (*see Figure 2*) of the interaction process between actors *p* and *o* in a collectively oriented, status differentiated and intergroup competitive situation.

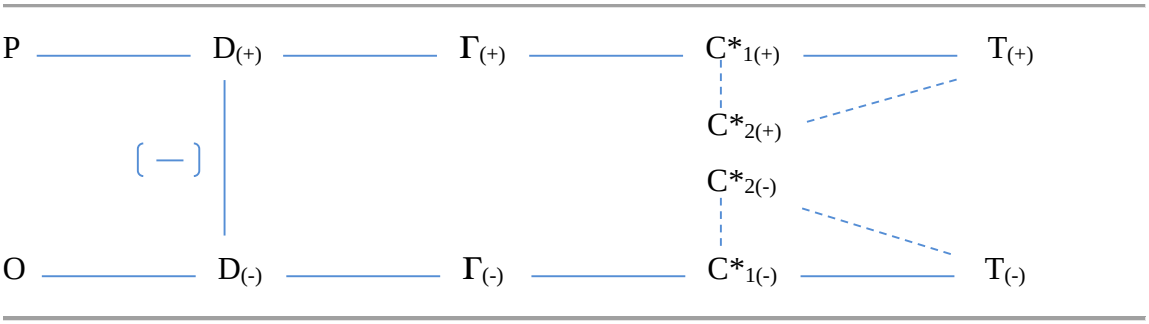

Figure 2. Theoretical Graphic Model of Predictions

This graphic representation shows two additional paths respective to actor *p* and *o*, such that actor *p* has four positive connections associated with her high diffuse state and performance characteristic, five positive connections associated with her high diffuse state and high competitive performance characteristic, five negative connections when comparing to actor *o* on performance ability at the task and six negative connections on competitive performance ability. Actor o's four paths correspond to the opposite of *p* such that actor *o* has four negative paths, 4-5-5-6. Just as the original situation predicts, it is assumed that actor *p* will perceive herself as performing better at the task in a competitive setting compared to actor *o*, and actor *o* will also come to reason in the same manner.

3.1 Hypotheses

When the group task includes the risk of losing a resource, such as with intergroup competition, I assert that group members will rely more on the status generalization process to do the best they can for the sake of winning. If performance expectations correspond with one's ability and competency at a task when competition is not present, it should be the case that performance expectations maintain under

competitive circumstances. Therefore, if a group is differentiated on the bases of diffuse status, I hypothesize the following:

Hypothesis 1a: High status group members will have more **influence** on task decisions than will low status group members.

Hypothesis 1b: High status group members will have **greater influence** on task decisions when the task is competitive rather than non-competitive.

As mentioned, the literature is not clear on exactly how or under what conditions competition might increase group performance. However, based on the scope conditions outlined and the earlier work by Goar and Sell (2005) and Goar et al., (2013), I hypothesize that:

Hypothesis 2: Groups will have **greater task performance** when the task is non-competitive rather than competitive.

I also consider evaluations reported by group members and compare these results across competitive and non-competitive conditions. The in-group bias literature in psychology notes how circumstances of the group setting can lead to increased evaluations for members of the same group. For instance, previous research demonstrated how arbitrarily categorizing groups as distinct from one another was enough to produce in-group bias in terms of resource allocation (Tajfel, Billig, and Bundy 1971; Tajfel 1970), evaluation ratings (Brewer and Silver 1978; Kahn and Ryen 1972; Rabbie and Horwitz 1969), performance evaluations (Vanbeselaere 1987) , trait ratings (Rosenbaum and Holtz 1985), and self-esteem (Bettencourt and Dorr 1998;

Singh, Choo, and Poh 1998). If the simple existence of another group is enough to produce in-group bias, I posit the following:

Hypothesis 3: Groups will indicate more **positive feelings** and **higher assessments of group members and the group overall** when the task is competitive rather than non-competitive.

This hypothesis suggests an insidious aspect to intergroup competition. Although inequality is present in their interactions, I predict that members of the group (high status/advantaged members as well as low status/disadvantaged members) may actually feel positively about the group's experience. In this manner, intergroup competition serves as a mechanism that helps to stabilize inequality.

It may be that there are other contributing factors. Marilynn Brewer's research in intergroup relations has focused on challenging key assumptions about intergroup processes. Her initial investigations suggested that in-group favoritism can occur without the presence of a competitive out-group (Brewer 1979). Additionally, the theory of relational cohesion (Lawler et al. 2000; Lawler and Yoon 1993, 1996) seems to suggest that equality in participation is an extremely important component for feelings of commitment. This theory was developed in part to demonstrate how commitment is fostered among actors in exchange networks. Lawler and his collaborators explain how positive emotions generate from frequent agreements, or exchanges between actors. This is especially the case when all actors have equal power relations (Lawler and Yoon 1998). Those exchanges ultimately produce a positive, cohesive relationship with the network. This effect of positive aspects in more equal exchanges might intervene in the

processes set in motion by competition with an out-group. In the context of my predictions, however, inequality would exist in both groups. I suggest that the pressure of the competition and the existence of the out-group will over-ride the negative effects of the unequal exchanges. In Lawler, Thye and Yoon's (2009) terms, the group is nested within an organization that is relying on competition and this should increase the strength of the group identification and emphasized the interdependence of group members.

4. EXPERIMENTAL DESIGN

4.1 Methods

I use experimental methods to evaluate my hypotheses. The purpose of the experiment is not to directly generalize to a particular group or population, but rather to test the basic principles I am concerned with: does competition with an external group exacerbate status inequality within the group? To test this, I design a laboratory experiment to control the interactive setting and prevent other important status characteristics of the participants from influencing the findings. Two study conditions (control, experimental) differ only in whether competition with an external group is absent or present in the group task, respectively. In doing so, I can determine if competition alone affects group outcomes.

4.2 Sample and Recruitment

To empirically test the hypotheses outlined, undergraduate students from a large public southwestern university were recruited and randomly assign to participate in one of the two study conditions. I restricted my sample to female undergraduate students with ages between 18 and 25, and who monoracially self-identify as non-Hispanic Black or White to vary on the basis of diffuse status. Restricting the sample to these demographics allows for a comparison of findings to previous studies with the same or very similar parameters (Goar and Sell 2005; Goar 2007) and ensures that the findings from the experiment were a result of varying competition as opposed to variations in other non-relevant sample characteristics.

Recruitments took place primarily in introductory social science courses in order to obtain a large sample of potential participants. Professors of these courses were contacted via email and asked for permission to recruit in their classes. Based on the demographic reports at this particular university, undergraduate students who self-identify as monoracially Black or multiracial with Black as one of their racial categories made up less than 4% of the undergraduate population. To increase the inclusion of Black participants, additional recruitment strategies included requesting permission to recruit from predominantly Black student organizations, Black Greek organizations, and undergraduate courses that focus on African American culture and history.

During the recruitment phase, students were given a brief general description of experimental social science projects and asked to complete information sheets if they wanted to volunteer for a future study. Students were prompted to answer several questions regarding their age, sex, academic status (e.g., freshman), and their racial identity. They were also asked to indicate times that they are willing to participate and to provide contact information. The students who indicated their willingness to participate and who fit the demographic requirements (i.e., African American/Black or White, female, age 18-25) were contacted using a web-based recruitment software and by telephone to be scheduled for the next available study.

4.3 Procedure

After three scheduled participants arrived for the study, they were escorted by an undergraduate research assistant into a large room and seated at partitioned desks. Once seated, the assistant informed participants that the purpose of the study was to examine

how people work together on problem-solving tasks. After collecting participants' signed consent forms, the assistant played a video of the study instructions that were specific to the randomly assigned condition for each study session. Instructions informed participants that the researchers were interested in understanding how some groups work together. To better understand this process, participants were asked to work individually on a serious of complex tasks. After working on the tasks individually, the participants would then work together on the same tasks with the intent of getting as many correct answers as possible.

Before participants began the individual tasks phase of the study session, they completed a pre-session questionnaire that ensured they understood the study instructions and could identify characteristics of their group members. This information was used later during data analysis to ensure manipulation checks for the study had been met. After completing the pre-session questionnaire, participants were instructed to begin working on the two complex tasks that require them to rank items in order of most to least important. After 20 minutes of working on the two tasks individually, participants were given 30 minutes to work as a group and come to a consensus of the correct answers. This is the only segment of the study protocol where participants were video recorded. When the participants finished the group portion of the study, the assistant collected all task related documents.

Participants were then instructed to compete a post-session questionnaire which asked for responses on their attitudes toward their individual performance as well as the performance of the other group members and their feelings toward their group in

general. After completing the post-session questionnaire, the assistant instructed participants to complete a contact questionnaire that asked respondents to reflect on how many times and how likely they are to interact with people from different racial backgrounds (i.e., Mexican American, African American/Black, White). Once participants completed the contact questionnaires, the assistant concluded the study by debriefing them, thanking them for their time, and paying them one at a time before they exited the laboratory.

4.4 The Tasks

In both control and experimental conditions, the groups worked on the "Lost on the Moon" and "Stranded in the Desert" survival tasks previously incorporated by Goar et al. (2013) and other researchers. Both tasks describe scenarios in which the three participants are crew members that are either lost on the moon or stranded in the desert some distance from their desired location. Participants were then instructed to rank a set number of objects from most to least important that they thought will help them survive their hypothetical circumstances. After completing both tasks individually, the assistant instructed participants to complete the group portion that required them to reach a consensus in how they ranked the items on both tasks. They were allowed to refer to their individual rank responses but could not change those original answers.

4.5 Independent Variables

The two study conditions were designed to manipulate the parameters of the task. Both the consent forms and video instructions provided participants with information that designated which condition they were assigned. Groups who were randomly

assigned to the control condition were provided instructions that indicated they would complete individual and group tasks, that they needed cooperate in order to complete the group tasks, and that "some people perform better at the task and some people perform worse…" on these types of tasks. Groups were also told that they had the opportunity to earn bonus funds based on how well their group's rankings matched experts' rankings on the same tasks. In other words, the bonus, regardless of condition, was based on how well they performed as a group.

The difference between control and experimental conditions was the presence of intergroup competition. To introduce this manipulation, instructions for the groups varied based on their randomly assigned study condition. After instructing groups of their opportunity to earn a bonus, groups in the control condition received the following instructions:

> "The bonus depends on how many correct responses your group develops. Remember that how well you do is based on how close your group's responses are to expert responses. The closer, the better, and of course it's very, very important that you rank every single item since you lose points if you don't."

Alternatively, groups randomly assigned to the experimental condition were instructed that earning bonus funds depended on their group's task performance compared to another group. In particular, they were told:

> "Your group today is in DIRECT COMPETITION with another group that has also worked on these tasks. Either YOUR group or the OTHER group will win the bonus. You will find out immediately after the study finishes whether your group or the other group won the competition. Remember that the competition is based on how close your group responses are to the expert responses. The closer, the better, and of course it's very, very important that you rank every single item

since you will lose points in the competition if you don't. Whichever team wins the competition wins the bonus money."

Additional information provided in the video strengthen the manipulation by further emphasizing the competitive aspect of the study and the fact that bonuses would only be given to one group pending their performance on the tasks. This was done to ensure that the groups in the Competitive condition fully understood the potential of earning more money and that the success of the group is what would determine their chances for obtaining the bonus. In reality, all groups regardless of condition were paid bonus funds.

4.6 Dependent Variables

There were several dependent variables analyzed for this study. **Influence** is the measure analyzed to test the first hypothesis predicting the source and degree of inequality. This variable was calculated based on the amount that participant's individual task rankings and the final group rankings differed. Higher differences between individual and group rankings corresponded with participants accepting more influence and deferring to other group members more often. Alternatively, lower values indicated that the participant exercised more influence over her other group members and had more similarity in responses between her individual and the group's rankings.

The second dependent variable analyzed for this experiment was **task performance** on the complex survival tasks. The group's final task rankings were collected and compared to the experts' answers to evaluate how closely the responses

matched. This is a group level measure where overall performance on the task was analyzed to compare outcomes across groups in control and experimental conditions.

To test predictions on affect toward the group, the post-session questionnaire responses were analyzed. The measures incorporated into the questionnaire were adopted from both in-group bias and relational cohesion literature. Participants were asked to report their perceptions of their group members' task **performance and affective** trait **ratings** such as friendliness, honesty, intelligence, and likability. They were also asked to reflect on their own feelings after completing the tasks, on the group's performance, the group's interactions, their relationship to the group, their group's efforts on the tasks overall, and their willingness to work with the same or a different group at a future time.

5. RESULTS

Forty groups of three women each were randomly assigned to either a control condition or an experimental condition. Each group was composed on one (self-identified) non-Hispanic Black or African American woman and two non-Hispanic White women.

5.1 Manipulation Check

To ensure that all scope conditions were met, each participant was provided a pre-session questionnaire immediately after viewing video instructions for the session. In the first of two sections, participants were asked to indicate responses based on the information they received to ensure instructions were clearly understood. Participants were expected to respond "Yes" to questions that asked whether the tasks had correct or incorrect responses, that some people do better or worse on the tasks, that bonus money could potentially be earned, that people do better on the tasks when working in a *group*, and that earning bonus money depended on their task performance as a *group*. Participants were expected to answer "No" to questions that asked whether people do better on the tasks when working *alone* and whether earning bonus money depended on their task performance *alone*. The last question related to the instructions asked participants to indicate whether their group would be competing with another group to potentially earn a bonus. Participants in control conditions were expected to answer "No," while participants in the experimental condition were expected to answer "Yes."

The last section of the pre-session questionnaire asked participants to indicate characteristics of their group members and of themselves. After indicating the name of one group member, participants indicated what they thought to be the person's sex category (e.g., female, male) and race/ethnic category (e.g., Latino/a, Black, White). After indicating characteristics for their two group members, participants answered the same questions of sex and race/ethnic category for themselves.

As participants completed pre-session questionnaires, the research assistant leading the study session observed their responses and indicated to participants if responses needed to be adjusted. For instance, if a participant answered "No" to the question of whether there were correct or incorrect answers, the research assistant would discretely notify her of the error so that she could correct to a "Yes" response. Likewise, if a group member indicated the incorrect sex or race/ethnic category of any of her group members, the research assistant would aid by telling her the correct response so that she could make the correction on the questionnaire. Because research assistants were unable to address every participant error, four study groups were removed from the analyses, leaving a total of 108 participants in the sample population (36 groups, 18 per condition).

5.2 Hypotheses Testing

5.2.1 Influence

The first hypothesis stated that inequality would occur from high status group members exerting more influence on low status group members. Furthermore, high status group members were predicted to exert more influence in competitive compared

to non-competitive conditions. To assess this, inequality was measured by the degree to which group members accepted influence from one another on the two survival tasks. To analyze this measure, individual responses to the tasks were compared to the final responses provided in the two group tasks. The degree of difference from the individual's response and the group's final response was summed for each task to reflect a change score measured in terms of difference between the individual and group responses. Higher values indicated greater difference between the individual's initial score and the group's score, which corresponds with greater acceptance of influence.

Roughly 15.7% of the study participants failed to complete both the individual study tasks in full. For example, the Desert survival task included 12 items to be ranked, but a participant may have only ranked items 1-10 and failed to rank the remaining two items as 11 or 12. To correct for the missing data in these cases, the missing rank values were summed and divided by the total number of missing rank values. Keeping with the previous example, this means that the value for the two remaining items was imputed as 11.5. This process of imputing missing rank items occurred in seventeen of the 108 cases.

Table 1a provides the two-way analysis of variance (ANOVA) for accepting influence in the two survival tasks by study condition (control, experimental), race (Black, White) and the interaction. The results indicate significant differences for influence outcomes across racial categories for both tasks ($F=11.32$, $p=0.001$ | $F=6.40$, $p=0.013$). Differences in the study condition only showed significance for the NASA

task (F=4.91, p=0.030), and no significant differences resulted for the interaction of study condition and race.

Table 1a. ANOVA for Accepting Influence by Task across Condition, Race, and Interaction

	Partial SS	**df**	**MS**	**F**	**Prob**
Task 1 (Nasa)					
Condition	896.338	1	896.338	4.88	0.029
Race	2078.365	1	2078.365	11.32	0.001
*Condition*Race*	0.298	1	0.298	0.00	0.968
Residual	19100.341	104	183.657		
Task 2 (Desert)					
Condition	44.155	1	44.154	0.48	0.489
Race	585.621	1	585.621	6.40	0.013
*Condition*Race*	26.981	1	26.981	0.29	0.588
Residual	9522.542	104	91.563		
Average (T1, T2)					
Condition	334.606	1	334.606	4.03	0.047
Race	1217.615	1	1217.615	14.66	0.000
*Condition*Race*	5.402	1	5.402	0.07	0.799
Residual	8640.473	104	83.082		

After identifying that there is a significant difference in influence, the next step was to assess the degree of difference. Table 1b demonstrates that group members in the control condition were more likely to accept influence than those in the experimental condition. The table also details the t-test results for accepting influence by race and study condition across the two tasks. The results provide support for Hypothesis 1a which predicted significant differences in influence between low status Black and high status White group members. In the control condition, Black group members had significantly higher rates of accepting influence on the NASA tasks (t=2.464, p=0.005) and on the Desert task at marginal significance (t=1.493, p=0.071). Similarly, Black

participants also accepted more influence compared to White group members on the NASA (t=2.299, p=0.013) and Desert tasks (t=2.057, p=0.022) the experimental condition.

Table 1b. T-Tests for Accepting Influence by Race across Condition and Task

	Black (n=36)		**White** (n=72)			
	Mean	**SD**	**Mean**	**SD**	**t-test**	**Prob (1T)**
Control (n=18)						
Task 1 (Nasa)	42.834	11.863	33.417	13.861	2.464	0.009
Task 2 (Desert)	26.018	9.086	22.139	8.961	1.493	0.071
Average (T1, T2)	34.426	7.674	27.778	8.683	2.753	0.004
Experimental (n=18)						
Task 1 (Nasa)	36.611	15.834	27.417	12.785	2.299	0.013
Task 2 (Desert)	25.722	10.116	19.722	10.098	2.057	0.022
Average (T1, T2)	31.167	10.497	23.569	9.453	2.684	0.005
Across Conditions (n=36)						
Average (T1, T2)	32.796	9.211	25.674	9.258	3.775	0.000

Hypothesis 1b stated that high status group members would have greater influence in experimental conditions compared to control conditions. A third value was created by averaging change scores from the two separate tasks to get a global degree of accepted influence from the group. Table 1c provides results for assessing the acceptance rates of influence across study condition. The findings suggest that while there is no significant change in the accepting influence for Black participants across conditions, there is a significant difference when analyzing the difference between White participants across condition. The degree to which White participants accepted influence from the group is significantly more in the control than in the experimental condition, indicating support for Hypothesis 1b. In other words, White participants exercised

significantly more influence over the group's decisions when competition was a factor (t=1.967, p=0.027).

Table 1c. T-Tests for Accepting Influence by Condition across Task and Race

	Control (n=18)		**Experimental** (n=18)			
	Mean	**SD**	**Mean**	**SD**	**t-test**	**Prob (1T)**
Task 1 Nasa						
Black (n=36)	42.834	11.863	36.611	15.834	1.334	0.096
White (n=72)	33.417	13.861	27.417	12.785	1.909	0.030
Task 2 Desert						
Black (n=36)	26.018	9.086	25.722	10.116	0.092	0.464
White (n=72)	22.139	8.961	19.722	10.098	1.074	0.143
Average (T1, T2)						
Black (n=36)	34.462	7.674	31.167	10.497	1.064	0.148
White (n=72)	27.778	8.683	23.569	9.453	1.967	0.027

5.2.2 Performance

The next stage of analyses tests the prediction from Hypothesis 2 that group performance on the tasks would be significantly less in experimental compared to control conditions. To analyze this measure, group responses to the two study tasks were compared to expert's responses. Higher values for the performance measure indicates greater difference between group and expert responses, which then corresponds to weaker performance on the tasks. Table 2 presents the outcome of t-test analyses comparing group performance outcomes across study condition for each task and with the tasks combined. Although the results from the analysis are in the expected direction when tasks are combined (t=-0.336), the results between control and experimental conditions do not produce significantly different findings to support Hypothesis 2

(p=0.631). Stated simply, group performance on the tasks are not impacted for better or worse by competitive conditions.

Table 2. T-Tests for Group Performance by Condition across Tasks

	Control (n=18)		**Experimental** (n=18)			
	Mean	**SD**	**Mean**	**SD**	**t-test**	**Prob (1T)**
Task 1 (Nasa)	36.278	8.762	36.278	9.573	0.000	0.500
Task 2 (Desert)	51.944	7.502	53.778	5.232	-1.203	0.117
Average (T1, T2)	44.111	11.386	45.028	11.758	-0.336	0.369

5.2.3 Evaluations and Affect

Hypothesis 3 predicted that participants would report significantly higher rates of positive feelings, performance evaluations, and greater cohesion in experimental compared to control conditions. Support for this hypothesis would suggest that the presence of an outside competing group impacts how group members reflect on their experiences with their group members in a positive way. However, the given that competitive conditions also result in greater inequality between group members, this also results in generating a context were group members perceive one another more positively, despite having unequal group interactions.

After completing the group task portion of the study, participants were asked to complete a post-session questionnaire where they rated themselves, their group members and the group in general across a series of nine-point bipolar adjective items. Six indices were created after confirming the consistency between the items using Cronbach's alpha and basic factor analytic techniques. The *peer performance evaluation* index consisted of participants evaluating their group members "in terms of [their] performance on the task" over six items: in/competent, weak/strong, competitive/cooperative, in/consistent,

self/team oriented, and un/supportive (mean= 2.92, SD= 1.00, α=0.81). The *peer affective trait ratings* index question asked participants to rate group members "in terms of [their] characteristics" on seven items: un/likable, un/friendly, dis/honest, un/intelligent, un/trustworthy, selfish/unselfish, and in/active (mean=3.02, SD= 3.02, α=0.85). The *task completion* index measured how group members "[felt] in general after completing the group tasks" across six items: un/happy, un/comfortable, bad/good, un/pleasant, negative/positive, and low/high (mean= 2.65, SD=1.41, α=0.95).

The *group interactions* index was constructed from ratings of how participants felt about "the nature of the group's interactions overall" across eleven items: dis/pleased, un/happy, un/satisfied, dis/contented, not/joyful, un/confident, un/enthusiastic, bored/excited, un/motivated, not/interested, and tired/energetic (mean=2.89, SD=1.04, α=0.95). The *group relationship* index question asked participants to reflect on their feelings about their "relationship to the group overall" and included six items: distant/close, divisive/close, fragile/solid, diverging/converging, dis/integrating and self/team oriented (mean=2.12, SD=1.53, α=0.91). Lastly, the *group efforts* index consisted of three items that asked participants to describe their "group's efforts on the tasks overall": un/successful, un/productive, and not/rewarding (mean=3.07, SD=1.00, α=0.85). Responses to two separate questions that asked participants to rate their willingness to work with the same or a different group on a future task were also analyzed.

Table 3 presents the two-way analysis of variance (ANOVA) for the measures that produced significant findings. No significant differences across condition or race

were found for indices on *task completion* or *group interactions*, nor were there significant findings on the questions asking whether participants were willing to work with the same or a different group for future tasks. However, the analyses for the four remaining indices of *peer performance evaluation*, *peer affective trait ratings*, *group relationship*, and *group efforts* indicate significant across race, condition, and the interaction effect. For the *peer performance evaluation* index, Black group members were given significantly lower peer evaluations than White group members received from Black group members in the control condition as predicted (means = 2.59, 3.25). Results were significantly different across condition as well. The peer evaluations for Black group members were significantly higher than they were in the experimental condition as predicted; however, White group members were given significantly lower peer evaluations by Black group members in the experimental condition (means = 3.00, 2.71).

This pattern is the same for the *peer affective trait rating* index. Black group members in the control condition were given significantly higher peer ratings than White group members, and while Black group members received significantly higher peer ratings in the experimental condition, White group members received significantly lower peer ratings in the experimental conditions (control means = 2.83, 3.23 | experimental means = 3.27, 2.78). For the *group efforts* index, Black participants rated their group's efforts as higher than did White participants in the control condition (means = 3.52, 2.77). Inversely, White participants rated their group's efforts slightly but significantly higher than did Black group members in experimental conditions (means = 3.09, 3.13).

There were also marginally significant differences in main effects across race for the *group efforts* index and across condition for the *group relationship* index. Overall, Black participants rated their group's efforts as significantly higher than White participants (means = 3.31, 2.95). And in support of predictions, participants in the control condition provided significantly lower ratings in terms of their relationship to the group compared to groups in the experimental condition (means = 1.88, 2.38).

Table 3. ANOVA for Peer and Group Evaluation and Affective Measures by Condition, Race, and Interaction

	Partial SS	**df**	**MS**	**F**	**Prob**
Peer Performance Evaluations[1]					
Condition	0.106	1	0.106	0.11	0.740
Race	0.845	1	0.845	0.88	0.350
*Condition*Race*	5.471	1	5.471	5.71	0.019
Residual	98.705	103	0.958		
Peer Affective Trait Ratings[1]					
Condition	0.001	1	0.001	0.00	0.971
Race	0.032	1	0.032	0.03	0.855
*Condition*Race*	4.788	1	4.788	5.10	0.026
Residual	96.783	103	0.940		
Relationship to the Group[2]					
Condition	7.139	1	7.139	3.11	0.081
Race	3.400	1	3.400	1.48	0.227
*Condition*Race*	0.486	1	0.486	0.21	0.647
Residual	231.779	101	2.295		
Group Efforts on Tasks Overall[3]					
Condition	0.025	1	0.025	0.03	0.872
Race	3.050	1	3.050	3.18	0.078
*Condition*Race*	3.717	1	3.717	3.87	0.052
Residual	99.806	104	0.960		

[1] index has N=107, [2] index has N=105, [3] index has N=108

6. SUMMARY

The goal of this study was to investigate the consequences of incorporating competition into an otherwise cooperative small group task. If small task-oriented groups are differentiated on the basis of diffuse status, the predictions were that the presence of competition from an outside group would increase inequality, reduce task performance, and increase group member's performance, affective, and cohesive relations to the group. To test these predictions, I constructed a controlled laboratory experiment with three-person task-oriented groups differentiated on the basis of race. Those groups were randomly assigned to a control or experimental condition that varied on the basis of absence or presence of competition, respectively.

Predictions based on graph theoretical delineation and derivations related to inequality in group interactions were supported. White group members not only had greater influence over group decision making compared to Black group members, but the degree to which they exerted influence was even higher in competitive compared to non-competitive conditions. I also predicted that performance outcomes for groups in the competitive condition would be worse compared to groups in the non-competitive condition. This was measured by the amount of change between the group task responses and expert responses to the two complex tasks. Descriptively, results indicated that performance was weakened in the competitive condition as predicted; however, the findings were not significantly different from the non-competitive condition.

The most surprising result from this study was the findings from predictions related to peer and group ratings. The prediction was that group members would rate one another and their group overall more positively in competitive compared to non-competitive conditions. In support of this prediction, group members in the experimental condition rated their relationship to the group significantly higher than did groups in control conditions. However, mixed results were reported for peer evaluation, peer affective, and group efforts ratings. Counter to predictions, Black participants rated their White group members lower in competitive compared to non-competitive conditions across performance and affective categories, while White rated their Black group members higher. Black participants' ratings for the group's efforts overall were also slightly higher than White group members overall.

6.1 Conclusions and Implications

Research using status characteristics theory consistently demonstrates how interactions in small task-oriented and status differentiated group settings produce unequal outcomes. The inequality occurs through the status generalization process which describes how behavior is affected by perceptions about self and other group members. Both high and low status group members reference general expectations associated with their and other's diffuse status to then generate expectations about performance on the task, and because high status is associated with high performance expectations, those with high status are predicted to have greater influence over the group decision making process compared to their low status counterparts.

In this study, I derived that the status generalization process could be intensified by modifying the scope conditions of status characteristics theory. Adding competition as a condition of the group's task was predicted to create an additional *competitive* performance characteristic (C*) that corresponded with general performance expectations (C*). Because this new information would be used to further differentiate one another in terms of who was likely to perform better (or worse) when the task involved competition, inequality between group members was predicted to intensify.

The hypothesis that high status group members exerted more influence in competitive compared to non-competitive conditions was supported. However, I did not include a prediction that considered how the low status group member's behavior would be affected. The analysis of the influence outcomes alludes to the existence of an asymmetric relationship to the status generalization process. When the group task was modified to include competition, only the high status actors' behavior was significantly impacted; low status group members did not accept significantly more influence when competition was a factor. This suggests that the high status group members did accept the added information of the competitive performance expectation (C^*_2), but the question is in *how* the information was incorporated.

One possibility is that the information bolstered high status group members' performance expectation and influenced their decision to exert more influence. Another possibility highlights the aspect of dimensionality in the generalization process. High status group members may have had negative competitive performance expectations (C^*_2) for their low status group members and exerted more influence over them,

assuming that it was necessary in order to perform well on the task. Conversely, there is no evidence to suggest that low status group members incorporated the competitive performance expectation (C^*_2) at all like their high status counterparts. This then implies that behavioral outcomes in these small group settings can be differentially affected, and the difference is in whether high or low status group members perceive added information as relevant to their task success.

I also predicted that group performance would be negatively impacted in competitive conditions compared non-competitive conditions. Rather than working cooperatively, I predicted that high status group members would be less likely to give consideration to low status group members' rationale for what they believed to be the correct answers to the tasks. The implication of this would be that while competitive and non-competitive groups may interact *collectively* based on the scope conditions of status characteristics theory, competitive groups do not work as *inclusively*. As a result, groups in competitive conditions effectively diminish their opportunity to come to correct responses. In contrast, there are few studies that demonstrate intergroup competition as having a significantly positive impact on group performance outcomes (see for example Mulvey and Ribbens (1999)). The explanation for this outcome suggests that group members not only work more inclusively, but also more strategically and analytically in order to performing to the best of their ability. Although my prediction was not supported, the findings dispute arguments that justify competition as a means for increasing performance on a group task.

The intergroup relations literature in psychology suggest that in-group bias takes the form of positive evaluations on performance and affect toward group members. These effects are predicted to occur in situations where group membership is salient (even if artificially created) and when interactions involve some comparison to or conflict with an out-group. Using a different approach, the theory of relational cohesion suggests that positive affect and commitment to a group relies heavily on the amount of equality between group members. The more that exchange agreements are made between actors, the more that positive emotions develop toward actors and eventually toward the group overall. While the relationship to the group was more positive in competitive compared to non-competitive conditions, this was the only measure that confirmed my prediction. The three remaining measures of peer performance, affective ratings, and group efforts provide mixed results. White group members in competitive conditions rated Black group members higher in competitive compared to non-competitive conditions as predicted, but Black group members rated White group members significantly lower across these measures compared to non-competitive conditions.

The theory of relational cohesion provides the best interpretation for these mixed results. Based on the results from the influence analyses, it is also evident that White group members exerted more influence on Black group members in both conditions, but especially so in competitive conditions. It follows then that even though each group succeeded in completed the group tasks, the decisions made in completing those tasks were not equal. Put a different way, the exchanges between low status and high status

group members were not equal and worked in favor of the high status White group members only. This then suggests that White group members rated Black group members higher in competitive conditions by establishing their ability to exert more influence over Black group members as "equal," and reporting approval of the Black group members for having been influenced by the White group members. Conversely, the Black group members rated White participants lower in the competitive condition as a response to the unequal exchanges that occurred at the time group members had to reach a "consensus" on the group tasks. Black participants likely experienced negative emotions as a result of their White group members attempts to exert more influence over them in competitive conditions, and those negative emotions translated into significantly more negative performance, affective, and group ratings overall. This implication suggests that the perception of an equal exchange within groups can also vary based on the *degree* of power exerted by high status group members onto low status group members.

6.2 Considerations for Future Research

Limitations in sample size and the study protocol have been considered. The objective was to test my predictions using 60 study groups (30 per study condition). With only 36 groups total (18 per condition), I was still able to establish significant differences and support several predictions. However, future studies should aim to include the established number of groups to attain statistical power to provide more precise and reliable results. When replicating this study design, I will also increase the amount of time participants are provided when completing the two complex tasks as a

group. Both survival tasks have been used successfully in other studies, however participants in this study had to complete more than one task in 20 minutes time and as a group in 30 minutes. The time in the individual phase was consistent with double the amount of time participants were given to complete one task in previous studies. However, consistent time for the group phase would mean providing groups 40 minutes as opposed to only 30 minutes. It may be the case that the time restriction increased the complexity of completing the tasks by limiting the amount of discussion possible. Based on earlier work by Goar and Sell (2005), this could also explain why the amount of inequality between group members was reduced in the second task compared to the first.

Several extensions to this study have also been considered. First, the video recordings of participants during the group task portion of the sessions are available to be transcribed and analyzed for additional influence factors. For instance, the rate at which group members speak and what they say during the decision making process can provide a more descriptive information for assessing the degree of influence. Second, a subsequent experiment incorporating the modifications suggested above will be conducted to determine whether the effects of competition change depending on the terms of the competition. Recall that participants in the competitive condition are told that they would be competing against another group and provided no other information. Predictions can be made to assess whether the effects of competition from this study are the same if more information about the outside competing group is provided (i.e., graduate students, male participants) or whether a group is necessary to generate the same findings (i.e., against a designated standard).

To conclude, findings from this study suggests that not only do significant effects occur when competition is made relevant to a status differentiated group's task, they produce negative impacts in terms of reduced influence over the group's decisions for low status group members and negative evaluations of high status group members as a result of the evident inequality.

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